

GENERAL ORDERS, } WAR DEPARTMENT,  
 No. 45. } ADJUTANT GENERAL'S OFFICE,  
 Washington, February 16, 1863.

REGULATIONS FOR THE CARE OF THE FIELD WORKS, AND THE  
 GOVERNMENT OF THEIR GARRISONS.

1. It will be the duty of the commanding officer of each work to provide for the care of the armament, and the safety and serviceable condition of the magazines, ammunition, implements, and equipments; and, by frequent personal inspections, to secure the observance of the rules prescribed for this purpose.

2. The fixed armament, consisting of the heavy guns, and those whose positions are prescribed, will be numbered in a regular series, commencing with the first gun on the *right*, as you enter, of the main gate. The ammunition will be kept in the magazines, with the exception of a few stands of grape, canister, and the *solid* shot, which will be piled near the guns.

3. The gun-carriages will be kept clean; they will be traversed daily, and never be allowed to rest for two successive days on the same part of the traverse circle. If the gun-carriage does not move easily on the *chassis*, the tongue will be occasionally greased. The gun-carriage should not rest habitually on one part of the *chassis*.

4. The *elevating screw* and its *box* will be kept clean and well greased. When the guns are not in use, the screw will be run down as far as it will go, the breech of the piece being raised until the muzzle is sufficiently depressed to prevent water running into it, and kept in that position by a wooden quoin or block. The *tompion* to be kept in the muzzle, and the apron over the vent.

5. *The piece is not to be kept loaded. It will be time to load when the enemy appears, or when special orders to load are given.*

6. The commanding officer will see that a shed is constructed for the implements and equipments. For each drill these will be issued to the gunners by the ordnance sergeant or other non-commissioned officer acting as such, who will receive and put them away after the

drill is over, and be at all times responsible to the commanding officer for their safety, and that the supply is adequate. Until sheds are provided, the *implements* will be kept near the pieces. The *equipments* (haversacks, tube pouch, &c.) may be kept at the entrance of the magazine, where they will be sheltered. Platforms for projectiles will be laid near the guns; for canisters a couple of pieces of scantling for skids will answer. A water shed, made by joining two boards together at the edges, should be placed over them. When the wooden sabots get wet, they swell and burst the canisters, so that they cannot be put into the gun. When this happens, dry the canister until the block shrinks sufficiently, and tack the canister edges together.

7. When not furnished by the Engineer Department, materials for constructing the sheds and for skidding will be furnished on requisitions made to the Chief of Artillery.

8. The magazines must in dry weather be frequently aired. For this purpose, the ventilators and doors will be opened after nine A. M., and must be closed, at latest, two hours before sunset. The ammunition for different classes of guns will be carefully assorted, and the shelves, boxes, or barrels containing each kind plainly marked. When there is more than one magazine, the ammunition will be so distributed as to be nearest to the particular guns from which it is to be used. Cartridges must be moved, and, if necessary, rolled once a week, to prevent *caking* of the powder. *Friction primers* will be carefully dried in the sun once a week, and always after a day's or night's rain. At least two lanyards for each gun will be kept in store. As soon as received, their *hooks* will be tested, to see if they are sufficiently small to enter the eye of the primer and yet strong enough for use.

9. No person will be allowed to enter the magazines except on duty, and then every precaution against accidents will be taken. Lights must always be in glass lanterns, and carried only by the person in charge of the magazine. Swords, pistols, canes, &c., will not be admitted, no matter what may be the rank of the person carrying them. Socks or moccasins will be worn, if they can be procured. No fire nor smoking will be allowed in the vicinity when the doors or ventilators are open. *Too much pains cannot possibly be taken to avoid the chances of an explosion.*

10. Companies will be assigned to guns in such proportions as will furnish at least *two*, preferably three, reliefs in working them, and sufficient men, in addition, for the supply of ammunition from the magazines. From fifteen to twenty men should therefore be assigned *to each gun*, and instructed in its use. Companies should habitually serve the same guns; each man being assigned a special number at the gun, and thoroughly instructed in all its duties, and, as occasion offers, in the duties of all the numbers. Every night, at retreat or tattoo, the men who are to man the guns in case of a night attack should be paraded at their pieces and inspected, to see that all their equipments, implements, and ammunition are in good order, and the gun in serviceable condition and easy working order. The men so stationed should "call off" their numbers before being dismissed, and in case of alarm repair at once to their posts, equip themselves, and *await orders*.

11. Each gun should be under charge of a non-commissioned officer, and every two or three guns under a Lieutenant, who will be responsible to the Captain for their serviceable condition at all times. The Captain will be responsible to the commanding officer for the condition of the pieces and the instruction of the men of his Company. Artillery drills will be frequent until all the men are well instructed, and there will never be less than *one artillery* drill a day when the weather will permit. For action, all the cannoneers not actually serving the guns will be provided with muskets, and will be stationed next the guns to which they belong.

12. Each company should be supplied with three copies of the *Tactics for Heavy Artillery*, and rigidly adhere to its directions. *Tables of Ranges* will be found in the work. One copy of "Instructions for Field Artillery" should be supplied each company. They can be obtained on written application to the Chief of Artillery, who will obtain them from the Adjutant General of the Army. The books so drawn are the property of the United States for the use of the company; they will be borne on the muster-rolls.

13. The commanding officer will make himself acquainted with the approaches to his work, the distance to each prominent point commanded by his guns, the nature of the ground between them and his post, and the most probable points of attack upon it.



*Tables of ranges or distances* for each point, and the corresponding elevations in each case, according to the nature of the projectile, with the proper length or time of the fuze when shell or case-shot are used, will be made out for *each gun*, and furnished to the officer and non-commissioned officers serving it. As these tables differ for different kinds of gun, the same men should be permanently assigned to the same piece.

14. The projectiles should be used in their proper order. At a distance, *solid shot*; then shells or case-shot, especially if firing at troops *in line*. *Canister or grape is only for use at short ranges*. When columns are approaching, so that they can be taken in direction of their *length*, or *very obliquely*, *solid shot* is generally the best projectile, because of its greater accuracy and penetrating power. If the *column* consists of Cavalry, some shells or case-shot will be useful from the disorder their bursting produces among the horses. As to the *absolute* distances at which the projectiles must be used, they vary with the description and calibre of the gun, and can only be ascertained by consulting the *Tables of Ranges*. The prominent parts on the approaches to the works should be designated, their distances noted, and directions drawn up for the different kinds of ammunition to be used at each gun when the enemy reaches them. During the drills the attention of the chiefs of pieces and gunners should frequently be drawn to this subject.

15. Commanding officers will pay special attention to the police and preservation of the works. All filth will be promptly removed, and the drainage be particularly attended to. No one should be allowed to walk on the parapets, nor move or sit upon the gabions, barrels, or sand bags that may be placed upon them. When injuries occur to the earth-works, they should be repaired as quickly as possible by the garrison of the work. If of a serious nature, they should at once be reported to the *Engineer officer* in charge of the work. *All injuries to the magazines or platforms of the guns will be promptly reported as soon as observed.*

16. Special written instructions as to the supply of ammunition at the different posts, and the proportion for the different classes of guns, will be furnished by the Chief of Artillery to the commanders of posts

at the earliest period practicable. Instructions will also be furnished as to the special objects of each work.

17. No persons not connected with the garrisons of the field-works will be allowed to enter them except such as visit them on duty, or who have passes signed by competent authority; nor will any person, except commissioned officers, or those whose duty requires them to do so, be allowed to enter the magazine, or touch the guns, their implements or equipments.

18. The garrison can greatly improve the work by sodding the superior (upper) slope of the parapet, and also the exterior or *outer* slope, or by sowing grass seed on the superior slope, first covering it with surface soil. The grass-covered or sodded portions of the parapets, traverses, magazines, &c., should be occasionally watered in dry weather, and the grass kept closely cut.

19. As a great deal of powder is wasted in unnecessary salutes, attention is called to paragraph 268 of the Army Regulations, edition of 1861.

Paragraph 268.—A general officer will be saluted but once in a year at each post, and only when notice of his intention to visit the post has been given.

20. The practice of building fires on the open parades for cooking and other purposes is prohibited, as it endangers the magazines.

21. The armament of a fort, having been once established, will not be changed except by authority of the commander of the district, geographical department, or army corps.

22. The machinery of the Whitworth guns will not be used except by special orders from the commanding officer of the post. There shall be at each fort and redoubt at least one drill a day as artillery, and one as infantry.

23. Particular care must be taken to keep the bores of the rifled guns free from rust, and always well oiled.

24. The forts will be inspected at such times as the Chief of Artillery may direct, and a full report of their condition will be made. Par-

ticular attention will be paid to the drill and police of the work in each case, as also to the condition of the armament, ammunition, and magazines.

### INSTRUCTIONS FOR FIRING.

1. The firing in action should be deliberate, never more than will admit of accurate pointing. A few shots effectively thrown will produce more effect than a larger number badly directed, although the larger number may have killed the most men.

It is not so important to kill as to inspire terror. The object of killing a portion is to so frighten the rest as to cause *them* to run; and to inspire this terror, precision of fire and consequent *certainty* of execution, is of infinitely greater importance than a great noise, rapid firing, and less proportional execution.

2. To secure accuracy of firing, the ground in the neighborhood must be well examined, and the distance to the different prominent points, within the field, covered by *each* gun, *noted*. The gunners and cannoneers should be informed of these distances, and in the drills, the gun should be accurately pointed at one or the other of them in succession, the gunner designating the spot, calling the distance in yards, and the corresponding elevation in *minutes* and *degrees*, until all the distances and corresponding elevations are familiar to the men.

When shell or case-shot are used, the time of flight corresponding to the distance must be given to the man who goes for the projectile. He tells the ordnance sergeant, or person who furnishes the ammunition, and the latter cuts the fuze to burn the required time.

3. The gunner is responsible for the aiming. He must, therefore, know the distance to each prominent point in the field covered by his gun, the elevation required to reach that point, and the time of flight of the shell or case-shot corresponding to each distance or elevation. He must have a table of these ranges taken from the Heavy Artillery Tactics, pages 265 to 269.\*

\*NOTE.—(The last table on page 269 should read: 8-inch seacoast howitzer, on barbette carriage, instead of 8-inch seacoast mortar.)

For example: The cartridges for the 24-pounder guns all weigh six pounds as issued to these works. The table, (page 265,) therefore, applies as follows:

*Twenty-four-pounder Gun on Siege or Barbette Carriage.*

Cartridge.	Ball.	Elevation.	Range.	
Lbs.	Shot.	° ' Yds.		
6	"	0 0	412	That is, the <i>bore</i> (not line of sight) being level, a range of 400 yards.
"	"	1 0	842	1 degree elevation, range about 850 yards.
"	"	1 30	953	1½ do. do. do. do. 950 do.
"	"	2 0	1147	2 do. do. do. do. 1150 do.
"	"	3 0	1417	3 do. do. do. do. 1400 do.
"	"	4 0	1666	4 do. do. do. do. 1660 do.
"	"	5 0	1901	5 do. do. do. do. 1900 do. the extreme range of 24-pounder round shot.

Thus, if the enemy appears at a point 1,000 yards distant, look at the table—950 yards requires 1° 30' elevation; 1,150 yards requires 2°; therefore, elevate a very little, say 5' to 10' over 1° 30', or simply give 1° 30' *full*.

In the same way, for each 8-in. seacoast howitzer, make out a table from page 269, noting, however, that only 6 and 8-pound cartridges being now issued for them, and of late *only* 8-pound cartridges, it must first be ascertained what the cartridges in your magazine weigh, and *then* make out the table accordingly.

4. These tables will be promptly prepared under the direction of the commanding officer, and copies furnished for each gun, and used habitually in the *drills*. They will be examined and verified by the Chief of Artillery.

5. The attention of all officers in charge of artillery in the works is directed to the articles in the Tactics on "*Pointing guns and howitzers*," pages 85 to 88.



6. Commanding officers of the works will keep themselves accurately informed of the amount and kinds of ammunition in the magazines. The supply should be kept up to 100 rounds per gun. When it is less than that amount, a special report will be made of the fact to the Chief of Artillery, with requisitions for the amount necessary to complete the supplies. They will also see that the necessary equipments are always on hand for the service of all the guns, as follows:

For 24 or 32-pdr. guns, the articles named on pages 47 and 48, Article 97.

For 8-in. seacoast howitzers, the articles named on page 58, Article 117; and for other guns, according to the tables as prescribed in the Tactics.

NOTE.—Two lanyards and at least 150 friction primers for each gun to be kept on hand; one lanyard and a very few primers to be kept in the tube pouch, the others in the magazine.

One globe or dark lantern for every three guns. Two globe lanterns for each magazine.

BY COMMAND OF MAJOR GENERAL HALLECK:

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